



IGF-1 in 9-mo old healthy Danish infants a risk marker of later disease?

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less than that of group B. Early intervention with nutritional supplementation has malnutrition, and may improve outcome in some patients. nutritional intake is insufficient to prevent the development of the complex pathogenesis of this condition.

IMMUNOLOGICAL ACTIVITY OF DIFFERENT DIETARY MELANOMA B16F10 IN THE PRESENCE OR CHEMOTHERAPY TREATMENT

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OBJECTIVES: Whey proteins have been researched in treatment of cancer. Porcine skin gelatin seems to induce 4 hepatoma cells. In this investigation, the antitumoral effect of whey protein isolate (WPI) and collagen derivatives, alone or in combinations with or absence of chemotherapeutic (ChTP) drug, were tested on C57BL/6J mice already transplanted with B16F10

METHODS: The proteins were used at 12% in AIN-93 diets. Mice were submitted to euthanasia by cervical dislocation and were subjected to macroscopic observations, survival rate, metastasis, measurements of tumor growth and volume, and tumor cell cycle analysis. All data were analyzed statistically.

FINDINGS: The percentage mortality ranged from 40% for the control group to 100% for the BCH + ChTP, compared with 50% for the WPI + ChTP. Tumor volume was largest for WPI treatment, both in the presence and absence of ChTP. The mice that received BCH + WPI + ChTP showed a higher percentage of apoptosis compared with WPI + ChTP group. The best alternative to be used as auxiliary diet during ChTP treatment was WPI + ChTP. The collagen derivatives seemed to present different antitumoral effects than WPI and both, used together, could be used more effectively.

ASSESSMENT OF WEIGHT STATUS, WEIGHT-RELATED EATING DISORDERS AMONG NON-CLINICAL ADOLESCENTS

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have diets that are less than optimal, particularly girls. The weight status, weight-related concerns and behaviors, and eating disorders among adolescent are poorly understood. This study examined weight-related concerns and behaviors, eating disorders and eating disorders in 1,525 boys and 2,019 girls, who completed the self-questionnaire. The rate of overweight and obesity in boys and girls was 6.2%, 14.8% and 6.2%, respectively. Weight self-perception related to weight status (boys, $r^2=0.49024$, $P<0.0001$, girls, $r^2=0.0001$). In comparison to nonoverweight youths, overweight youths were more likely to care about controlling weight ($P<0.0001$, girls, $r^2=0.20786$, $P<0.0001$). Higher prevalences of eating disorders were found among adolescents (girls, 34.7%; and boys, 14.0%). Bulimia and psychiatric disorders were further examined in 95% confidence intervals [boys: ID, 0.691 (0.494-0.968), $P<0.0001$, MF, 3.796 (2.758-5.226); girls: ID, 2.545 (2.098-3.086), $P<0.0001$, MF, 2.331 (1.901-2.857)]. Adolescents, who were overweight, would benefit from early intervention, which is dealing with potentially harmful social norms.

DP13-14

OBESITY, BODY FAT DISTRIBUTION AND MENARCHEAL AGE AMONG ADOLESCENT GIRLS

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RATIONALE AND OBJECTIVES: Overweight has become a worldwide public health problem, which can affect endocrine profiles and sexual maturity. This study was aimed to evaluate associations between obesity, body fat distribution and menarcheal age (MA).

MATERIALS AND METHODS: A total of 1266 adolescent girls were recruited and their anthropometrics were measured using standard methods. Overweight and obesity was defined as BMI ≥ 85 th and ≥ 95 th percentile of age- and sex-specific values from NCHS, respectively, and central obesity was defined as waist-to-hip ratio of ≥ 0.80 . MA was determined by validated questionnaires.

RESULTS AND FINDINGS: Survival analysis showed an inverse association between pubertal BMI and MA. The mean of MA in underweight, overweight and obese girls were 170(sd1.9), 163(sd1.2) & 164(sd1.8) months, respectively ($P=0.0007$). Inversely, central fat distribution was associated with later menarche. Mean of MA was 165(sd0.5) months in those with WHR <0.8 and was 171(sd1.6) months in those with WHR ≥ 0.80 .

CONCLUSION: Although further studies are needed, obesity may be associated with earlier sexual maturation in adolescent girls. Meanwhile, central fat distribution may be associated with later menarcheal age. Weight management at puberty is necessary to prevent sexual maturation disturbances.

DP14: Nutrition Throughout Life Course I

DP14-01

NUTRITIONAL STATUS AND GROWTH AFTER MENARCHE: AN INTERETHNIC EPIDEMIOLOGIC STUDY

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BACKGROUND: Given that great changes occur during puberty, this study aims at analyzing eventual differences that might be related to the nutritional status and growth at menarche and 18 month thereafter.

METHODS: 8504 girls were screened, classifying them as indigenous (I) or non indigenous (NI) and as recently having menarche. They were followed for 18 m to uncover eventual changes in height, weight and BMI

RESULTS: Cohorts comprised 126 (NI) and 114 (I). Mean (\pm SD) age of menarche was 146.7 \pm 11.3 (NI) and 151 \pm 10.8 (I) ($p<0.05$). Stature at menarche in I reached 149.9 cm (\pm 4.8), 2.2 cm lower than NI ($p=0.002$). Though the difference augmented 0.5 cm after six months, longitudinal growth in both groups became equivalent in the following 6 m periods. BMI was significantly lower in NI (1.2 \pm 1.0) than in I (0.9 \pm 1.0), at menarche and thereafter.

DISCUSSION: Differences in stature among I and NI are readily overcome in the 12 months after menarche. Thus, it is likely that the difference in height lost, occurring early in life and after menarche, is irrelevant. The BMI status suggests the need of interventions to control the excess weight before and during adolescence, mainly in I girls.

DP14-02

IGF-1 IN 9-MO OLD HEALTHY DANISH INFANTS: A RISK MARKER OF LATER DISEASE?

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BACKGROUND: Serum IGF-1 is an important factor in disentangling the relationship between body size, growth velocity, and dietary intake and later disease risk.

DESIGN: Ongoing observational study with measurements of anthropometry, food records, stool, urine and blood samples.

RESULTS: Anthropometry and IGF-1 values were available from 250 (9-month old) children with mean weight 9134 \pm 995 gram and length 72.0 \pm 2.4 cm. Females had higher IGF-1 than males (57.1 \pm 22.3 vs. 47.9 \pm 15.1 ng/mL)

$p=0.0002$. Children not breastfed at 9-mo ($N=119$) had higher IGF-1 than those partly breastfed ($N=131$) (56.1 ± 20.1 vs. 49.5 ± 18.8 ng/mL) $p=0.008$. IGF-1 was negatively correlated to birth weight $p=0.0062$ and birth length $p=0.059$ and positively with 9-mo weight $p<0.0001$ and length $p=0.030$. Change in weight and length between birth and 9-mo was correlated with IGF-1 ($r=0.38$ and $r=0.25$) both $p<0.0001$. IGF-1 was positively correlated to 9-mo waist circumference $p=0.031$ and triceps skinfold $p=0.041$.

CONCLUSION: IGF-1 was significantly higher in females than males, significantly higher in children not breastfed and strongly related to weight and weight gain.

DP14-03

DIETARY PATTERNS AND ATTENTION DEFICIT HYPERACTIVITY DISORDER IN IRANIAN CHILDREN

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RATIONALE AND OBJECTIVES: Few data are available regarding the association between major dietary patterns and attention deficit hyperactivity disorder (ADHD). The current study was therefore conducted to assess the relation of major dietary pattern identified by factor analysis to ADHD in a group of Iranian school-age children.

MATERIALS AND METHODS: In a cross-sectional study, among 375 school-age children in Tehran, we assessed usual dietary intakes by a pre-tested semi-quantitative food frequency questionnaire. The presence of ADHD was diagnosed by DSM-IV questionnaire. Major dietary patterns were identified by the use of factor analysis.

RESULTS AND FINDINGS: We identified 4 major dietary patterns and labeled them as "healthy", "western", "high sugar" and "fast foods" dietary patterns. After control for potential confounders, children in top quintile of "high sugar" dietary pattern score had greater odds for having ADHD as compared with those in the lowest quintile (Odds ratio: 3.95; 95% CI: 1.16, 15.31; P for trend <0.01). Greater adherence to "fast food" dietary pattern was significantly associated with higher risk of having ADHD (Odds ratio: 2.28; 95% CI: 1.05, 10.09; P for trend <0.01). No overall significant associations were seen between either healthy or western dietary patterns with ADHD.

CONCLUSION: We found significant independent associations between "high sugar" and "fast foods" dietary patterns and prevalence of ADHD. Prospective studies are required to confirm these findings.

DP14-04

DAIRY INTAKE, HEALTH AND PSYCHOLOGICAL WELLBEING IN MIDDLE-AGED SOUTH AUSTRALIANS

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RATIONALE AND OBJECTIVES: Recent observational and interventional studies provide evidence for the role of low fat dairy foods in improving obesity, hypertension, and diabetes. Little research has examined the relationship between dairy consumption and cognitive health. This is a novel research question that warrants investigation as dairy consumption may benefit cognition via its positive effects on cardiometabolic health. This study sought to examine associations between dairy intake, physical and psychological health in middle-aged adults.

MATERIALS AND METHODS: A retrospective, cross-sectional analysis was undertaken using dietary information collected by food frequency questionnaires and the self-reported health of 1183 adults.

RESULTS AND FINDINGS: Consumption of low fat yogurt was associated with increased memory recall and greater social functioning in men. Consumption of low fat cheese was associated with greater social functioning and decreased stress in women (all $P<0.05$). Intakes of some whole fat dairy products were associated with poorer health outcomes.

CONCLUSION: Cross-sectional findings indicate that low fat dairy may have beneficial effects on psychological health. While it is difficult to determine cause/effect from cross-sectional data, long-term dietary intervention trials are needed to establish whether there is a direct effect of dairy consumption on cognitive and psychological health.

DP14-05

AGE AND SEX PATTERNS OF UNDER- AND OVERNUTRITION IN CHILDREN AND ADOLESCENTS IN CONTEMPORARY SOUTH AFRICA

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RATIONALE AND OBJECTIVES: Developing countries are burdened by malnutrition, persistent undernutrition, together with overweight and obesity. This nutritional shift is accompanied in health with vascular diseases and diabetes, emerging as major concerns. Further, there is evidence of a link between obesity in adolescence, and obesity and chronic illness in adulthood. The level of undernutrition continues to be a critical problem for children and adolescents. Additionally, studies in South Africa document the prevalence of overweight and obesity among adults, with growing interest in communicable diseases. However, little information exists on the pattern and prevalence of obesity in children and adolescents in rural South Africa. This paper describes the age and sex patterns of overnutrition in children and adolescents in a rural community.

MATERIALS AND METHODS: Cross-sectional growth data from 3511 children and adolescents, aged 1-20 years, was used. Participants were randomly selected from an existing demographic surveillance system in Agincourt sub-district, South Africa. Anthropometric measurements were standardized to z-scores generated and used according to international standards for stunting, underweight, wasting, overweight and obesity by age and sex. Tanner pubertal staging was performed for adolescents. The prevalence of overweight and obesity by pubertal stage and prevalence of overweight and obesity by pubertal stage were determined.

RESULTS AND FINDINGS: Prevalence of stunting in childhood in both boys and girls, with a peak of 32% at 1 year of age. Underweight was also frequent in early childhood, high in adolescent boys, highest at 14 years (19%). Prevalence of overweight and obesity, almost non-existent in boys, was high in girls, reaching a peak of 25% at 18 years, increasing steadily with Tanner pubertal staging from stage 2 to 5.

CONCLUSION: The high levels of co-existing undernutrition and overweight indicate that the community, representing rural settings in South Africa, is fairly advanced in transition towards an urban-like profile of malnutrition in rapidly changing rural settings, where the nutritional transition and the dual approaches required.

DP14-06

DIETARY CHANGES AND THEIR HEALTH IMPLICATIONS IN THE PHILIPPINES*

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Developing countries are experiencing a "double burden" of malnutrition, along with a rapid rise of diet-related chronic diseases. A study was done to (1) examine evidence of dietary changes and their health status; and (2) establish if the Philippines has a "double burden" of malnutrition. The sources of data are the National Nutrition Surveys and Field Health Service Information System. The study revealed that dietary pattern in the last 10 years shows increasing intake of fats and oils, sugars and syrups, and processed products; and a declining consumption of fruits and vegetables. Stunting, and micronutrient deficiencies persist in public health while mortality trends show that diseases of the heart and vasculature have become the top two leading causes of deaths. These evidence the Philippines faces a "double burden" of malnutrition. The government and private sector to develop and implement programs that address both under- and overnutrition.

* A Food and Agriculture Organization (FAO)-funded project titled "Dietary Changes and their Health Implications in Countries with a Double Burden of Malnutrition".